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EXAMINER

ZHENG, EVA Y

ART UNIT PAPER NUMBER

2611

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/612,545

Applicant(s)

KIM, JEA-SEONG

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. The request filed on February 17, 2006, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/612,545 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for lack of antecedent basis.
 - a) Claim 2 recites the limitation "said data transmission process" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.
 - b) Claim 3 recites the limitation "said data reception process" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5, 7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Diepstraten (US 5,339,316).

a) Regarding claim 1, Diepstraten disclose a method for serial data communication which transmits and receives data in two-way, comprising:

transmitting data (TXD 58 in Fig. 2) and a separate clock signal (TXC 60 in Fig. 2) from a first control unit (46 in Fig. 2) to a second control unit (62 in Fig. 2), at the same time checking a reception confirmation signal of the second control unit by the first control unit (CONTROL/STATUS 56 (carries various control/status signals) in Fig. 2; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13);

transmitting data (inherent as RXD 52 in Fig. 2) and a separate clock signal (inherent as RXC 54 in Fig. 2) from a second control unit (62 in Fig. 2) to the first control unit (46 in Fig. 2), at the same time checking a reception confirmation signal of the first control unit by the second control unit by checking the separate clock signal from the first control unit (interpret as the clock signal TXC 60; CONTROL/STATUS 56, a bi-directional signal).

b) Regarding claim 2, Diepstraten disclose the method according to claim 1, wherein said data transmission process further includes the steps of:

confirming whether data was received (inherently as CONTROL/STATUS 56 in Fig. 2; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13), starting the data transmission with a data transmission start

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signal (71 in Fig. 3), and receiving the reception confirmation signal from the second control unit (62 in Fig. 2);

recognizing the data reception of the second control unit (62 in Fig. 2), and reversing the transmission start signal in order to transmit a next data (72 in Fig. 3) (Col 3, L62-Col 4, L2);

transmitting a transmission permission signal which permits the next data transmission to the first control unit by the second control unit (RXD52 in Fig. 2); and

feedback-receiving the transmission permission signal (as shown in Fig. 2).

c) Regarding claim 3, Diepstraten disclose the method according to claim 9, wherein said data reception process further includes the steps of:

receiving a first data (RXD52 in Fig. 2) from the second control unit (62 in Fig. 2) and feedback-performing a signal for informing the reception (CONTROL/STATUS 56 in Fig. 2);

receiving a preparation signal for informing a next data transmission from the second control unit (as shown in Fig. 2);

transmitting the data transmission permission signal to the second control unit (TXD58 in Fig. 2); and

transmitting the next data on the second control unit after feedback receiving the data transmission permission signal (as shown in Fig.2).

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- d) Regarding claim 5, Diepstraten disclose the method according to claim 2, wherein a transmission error occurs when the reception confirmation signal is not received (Col 4, L3-14; Fig. 9; Col 7, L62- Col 8, L13).
- e) Regarding claim 7, Diepstraten disclose the method according to claim 2, wherein the transmitting process of the data reception confirmation signal and the data transmission permission signal is performed more than two times (as shown in Fig. 6A, Fig. 6B and Fig. 8).
- f) Regarding claim 9, Diepstraten disclose the method according to claim 1, further comprising receiving the data (52 in Fig.2) and the separate clock signal (54 in Fig. 2) from the second control unit (62 in Fig. 2) by the first control unit (46 in Fig. 2), at the same time checking a transmission confirmation signal of the second control unit by the first control unit (CONTROL/STATUS 56 in Fig. 2; a bi-directional signal; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13).
- g) Regarding claim 10, Diepstraten disclose the method according to claim 1, wherein the step of checking the reception confirmation signal of the second control unit by the first control unit includes checking the separate clock signal from the second control unit by the first control unit (interpret as TXC 60 clock signal).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diepstraten (US 5,339,316) in view of Knoblock et al. (4,186,379), and in further view of Wong (6,650,149).

a) Regarding to claim 8, Diepstraten disclose an apparatus for serial data communication, comprising:

two control units (46 and 62 Fig. 2) for transmitting data with a data transmission start signal at a data transmission mode (Fig.3), performing repeatedly the data transmission process which feedback-receives a data transmission permission signal and a reception permission signal from one control unit to the other control unit and transmits the data, and transmitting repeatedly the data reception confirmation signal and the data transmission permission signal from one control unit to the other control unit (CONTROL/STATUS 56 in Fig. 2; a bi-directional signal; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13);

four serial buses for performing serial data transmission and clock signal transmission between the two control units, each of said control units transmitting a clock signal separately from a data signal (TXC60, TXD 58, RXC54, and RXD52 as shown in Fig. 2), the data reception confirmation signal being transmitted via the clock

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signal transmission from one of the two control units to the other of the two control units (interpret as TXC 60 and RXC 54).

Diepstraten disclose all the subject matter claimed, except the special teaching of (A) two pull-up operation units, and (B) a control voltage matching unit.

With respect to item (A), Knoblock et al. disclose pull-up operation units for maintaining control voltage level of the to serial buses at a certain level (Fig. 3; Col 2, L 65- Col 3, L16).

Data driver most commonly used to drive data and valid data indicator lines typically contain either passive or active "pullup" circuitry. (Col 1, L18-20) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement pullup resistors apparatus taught by Knoblock et al. in the data transmission system taught by Diepstraten. By doing so, data are transmitting under a known and controlled voltage. Therefore, improving data transmitting process and quality.

With respect to item (B), Wong discloses a control voltage matching unit for continuing voltage equilibrium condition by muting excessive voltage at grounding side when the control voltage level do not coincide with the serial bus due to an operation voltage difference of the pullup operation units (Fig. 1-4; Col 1, L66- Col 2, L11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a control voltage matching unit (fail-safe circuits) taught by Wong in the pullup resistors apparatus taught by Knoblock et al. By doing so, signals that are transmitted over cables, buses, or drivers have better quality and transmission rate.

b) Regarding to claim 11, Diepstraten disclose wherein the one of the two control units transmits the data signal and the separate clock signal to the other of the two control units, and at the same time checks the data reception confirmation signal transmitted via the clock signal transmission from the other of the two control units to the one of the two control units (as shown in Fig. 2; CONTROL/STATUS 56 in Fig. 2; a bi-directional signal; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13).

c) Regarding to claim 12, Diepstraten disclose wherein the other of the two control units transmits the data signal and the separate clock signal to the other of the two control units, and at the same time checks the data reception confirmation signal transmitted via the clock signal transmission from the other of the two control units to the one of the two control units (as shown in Fig. 2; CONTROL/STATUS 56 in Fig. 2; a bi-directional signal; status of signals include a ACK signal (confirmation signal) as shown in Fig. 9; Col 7, L62- Col 8, L13).

Allowable Subject Matter

8. Claims 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2611

April 17, 2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER